

## **IN THE SPECIFICATION :**

Revise the paragraph on lines 6 to line 16 of page 21 as follows:

The resistance fluid is preferably a gas and the gas pressure control may comprise a manual throttle valve (not shown) in conduit 41, in combination with a pressure gauge 43 to indicate the gas pressure. Alternatively, a pressure regulator 45 may be used for maintaining a manually selected centering system pressure. A selector knob 49 is provided to permit varying the pressure settings of the regulator by hand. By varying the gas pressure in the gas chamber 109 by adjustments to pressure regulator 45, the break away resistance and the centering return force produced by the centering assembly of the invention can be increased or decreased as desired. The pressure gauge and the ~~regular~~ regulator may be mounted on a control panel 89, preferably located at or near the driver's station of the vehicle. The range of pressures available should be selected so that break away resistance can be varied from relatively low at low speeds to relatively high at high speeds.

Revise the paragraph on lines 18 to 29 of page 21 as follows:

Pressure regulator 45 is connected to a compressed gas source 101 via a conduit 103 containing a solenoid operated three-way valve 105. The gas pressure in chamber 109 is indicated by the pressure gauge 43, which is connected to pressure ~~regular~~ regulator 45 by a conduit 107. The gas is preferably air. The electrical components of the control system are activated by an on-off switch 113, which is connected to an electrical bus 115 by a line 117 containing a circuit breaker 119. As it is best to deactivate centering unit 20 in the event of a failure of the power steering system, a switch 121 for interrupting electrical power to the solenoid valve 105 may be provided for vehicles with power steering systems. Switch 121 is mounted on

a pressure sensor 123 located in a hydraulic line 125 in fluid communication with the outlet of the power steering pump (not shown). A loss of pressure at the pump outlet causes switch 121 to open, thereby causing gas supply valve 105 to close off pressure source 101 and to dump air from line 103 to ambient via exhaust line 108 in the absence of electrical power to its solenoid.

Revise the paragraph on lines 1 to 15 of page 23 as follows:

Fixed within bores 127 of cam plate 110 are a plurality of guide pins 140 depending from radially offset positions of piston cam plate 110. Guide pins 140 slidably engage corresponding bores 142 in a clutch disk 149 during reciprocal movement of cam plate 110 and clutch disk 149 relative to each other. The plate 110 moves in response to movement of a plurality of bearing members, preferably ball bearings 136, out of their corresponding detents in piston plate 110 and rotary plate 122, and the disk 149 moves in response to movement of a trim piston 130 as described below. The piston cam plate 110 is held against rotary movement by means of the pins 140 as long as clutch disk 149 remains in frictional engagement with clutch ring 156. As an alternative arrangement, the guide pins 140 could be fixed in the bores 142 and slidably engage the bores 127. Also provided in the unpressurized space ~~[[126]]~~ 131 between the cam plates 110 and 122 is a bearing member spacer 154 for maintaining the same spacing between the ball bearings 136 as the spacing between the detents 112 and the detents 124 when the ball bearings move away from their seated positions in the detents during rotation of the rotary cam plate 122 in response to turning movements of the vehicle steering system, as transmitted through the lever or Pitman arm shaft 28 and the centering shaft 36.

Revise the paragraph on line 29 of page 23 to line 6 of page 24 as follows:

Fig. 7 illustrates the ball tracks 114 and Fig. 9 illustrates a moved position of the ball bearings 136 along these tracks in response to turning movements of the vehicle that cause

corresponding movements of the Pitman arm 35 as illustrated by the phantom lines 27' and 27'' in Fig. 4. In Fig. 9, the ball bearings 136 have moved away from the seat bands 118 and past the ends ~~[[127]]~~ 129 of their respective ramps 116, such that the bearings will thereafter move along the static ball track 114 and the rotated ball track 126 upon further turning movement of the vehicle. As the ball bearings 136 progress up the ramps 116 away from their respective seat bands 118 and past the ramp ends ~~[[127]]~~ 129, the piston plate 110 and its depending guide pins 140 move from the positions shown in Fig. 6 to the depressed positions shown in Fig. 9, as represented by a snap ring stop 169.

Revise the paragraph from line 29 of page 25 to line 6 of page 26 as follows:

To provide the clutch-like mechanism, the clutch disk 149 and a push plate 139 rest against and are moveable axially by actuating means comprising one or more trim bars 144 arranged in a chamber 147 for pivotal movement in a longitudinal plane of the bar and around an elbow 145 adjacent to its distal end in response to axial movement of the trim piston 130. The elbow 145 adjacent the distal end is shaped and arranged to function as a fulcrum for pivotal movement of the proximate end of the bar around this fulcrum by axial movement of the trim piston to which the proximate end is pivotally connected. Although the bars are made of a resilient material, such as steel, they are sufficiently long and stiff to overcome without significant bending the clutch disk and ring engaging forces provided by both the fluid pressure in chamber 109 and the spring force of springs 146.

Revise the paragraph on lines 21 to 29 of page 26 as follows:

Pivotal movement of the bars 144 is facilitated by loosely mounting each of their proximate ends on a corresponding anchor pin 133, the shaft of which has a diameter substantially smaller than the diameter of an aperture 132 in the proximate bar end. The

proximate bar ends are held in place on the ends of the anchor pin shafts by a keeper disk 135 that in turn is held in place by a snap ring 136 on an axial guide post 137. The guide post 137 is fixed in a bore 157 in trim piston 130 and slides in a bore guide 138 in push plate 139 to guide both the push plate and the clutch disk 149 as they reciprocate axially in response to the pivoting of the bars 144 by trim piston 130. As an alternative arrangement, the guide post 137 could be fixed in bore 138 and slide in bore 157.

Revise the paragraph on lines 1 to 11 of page 31 as follows:

Thus, in Fig. 13, the ball bearings 236 have moved away from the seat bands of detents 212 and 224 and past the ends of their respective ramps, such that the bearings will thereafter move along the static ball track 214 and the rotated dynamic ball track 226 upon further turning movement of the vehicle. As the ball bearings progress up the detent ramps away from their respective seat bands and past the ramp ends, the piston cam plate 210 and its depending lug 213 move from the rest positions shown in Fig. 12 to the depressed positions shown in Fig. 13 wherein lug 213 is near the bottom of bearing jacket 205. The opposite longitudinal ends of ears 207, 207 and of ~~sleeve~~ jacket 205 are tapered at 275 and 282, respectively, as shown in Figs. 12 and 15. The angles of these tapers match the angle of the slope of piston plate surface 279 so that the ends of the ears and the sleeve do not interfere with piston cam plate 210 as it travels into its depressed position.

Revise the paragraph from line 25 of page 31 to line 2 of page 32 as follows:

To provide the clutch-like mechanism, the entire centering assembly and its casing 200 are carried by the clutch disk 249 and all of these components, including the centering chamber 209, are moveable axially by pressurizing a trim chamber 262 of a trim cylinder formed by an annular outer wall 259 of the base member 258. In this embodiment, disk 249 serves as a trim

~~piston component and has an annular depending ridge 264. of the clutch disk 249 serves as a trim~~  
~~piston component 264, and~~ The trim chamber 262 is pressurized via a fluid passage 271 and a  
port 260 in disk 249. Port 260 is preferably connected to the high-pressure air line 42 of Fig. 4.  
The outer surface of trim piston ~~component~~ ridge 264 carries a wear ring 232 of low friction  
material and an O-ring seal 273. A dust seal ring 238 is fixed to the distal edge portion of trim  
cylinder wall 259 and reciprocates in an annular groove 237 in an opposing portion of clutch disk  
249 as this disk reciprocates axially during trimming adjustments as shown in Fig. 13.

Revise the paragraph on lines 1 to 10 of page 34 as follows:

It is also important to recognize that the centering unit of the present invention engages  
the vehicle steering system at a location between the steer wheels and the reduction steering gear.  
As a result, spurious inputs from the steering column 30 and/or from the power steering unit 32  
are absorbed by the centering unit 20 or 20[""] ' before these inputs can reach the steer wheels.  
Likewise, spurious forces transmitted from the roadway are immediately absorbed in the  
centering unit, rather than being transmitted through the entire steering assembly before  
encountering any stabilizing resistance from the steering wheel. As a result, the centering unit 20  
or 20' protects the interior components of the steering assembly from the wear caused by repeated  
oscillations between states of tension and compression.